

Exercises

0.147 [OXW] Difficulty:*. Show, for every $a/b \in \mathbb{Q}$ with a, b coprime and b not divisible by p , there exists $(x_n)_n \subseteq \mathbb{Z}$ such that $|x_n - a/b|_p \rightarrow_n 0$. Note that the assumption is necessary.

Solution 1. [OXX]

We proved that \mathbb{Z} is dense in the disk $\{x \in \mathbb{Q}, |x|_p \leq 1\}$.